USER MANUAL
BLACKSYS CH-100B

CAMMSYS Blackbox

※ BlackSys Application may vary in function depending on mobile product and OS version.

Thank you for choosing BlackSys.

This manual is based on the CH-100B model.
The latest firmware & manual can be found at our website
www.blacksys.co.kr/en

■ Please read carefully before using this product.

※ This manual should be reviewed and retained for future reference.
※ CAMMSYS Corp. reserves all rights to this manual in accordance with the copyright law.
※ Content of this manual is subject to change without notice to ensure quality control.
※ Differences in product functionality may differ depending on firmware.
※ This product was designed as an accessory for safe driving. In the event of an accident, all responsibility is borne by the vehicle operator. Please use this product responsibly.

■ Scope of guarantee and responsibility

※ This product is a vehicle-accessory for recording video image and sound for the simulation of an accident and recorded data may be used as evidence and reference purposes. We cannot guarantee this product to capture all accident related video image and sound. Quality may differ due to weather condition(s).
※ We will not be held responsible for any damages and/or data corruptions or loss caused by a malfunction of this product.
※ In general, the memory card lifespan for this product is ~ 6 months and may be subject to data corruption or loss due to static electricity and/or external voltage. For this reason, we highly recommend the user to copy and save important data to external media (hard disc, CD, portable memory, etc.).
※ Memory card may contain corrupt images (image recording omissions, image cuts, frame change and omission, other defect in image recording) due to a decrease in reading/writing speed and other defects. For the best results, please use the authorized SD memory cards and format periodically. (Once a month for 16G micro SD memory card)

Contents

01 Instruction for Use
- 1-1. Product Precautions ····· 04
- 1-2. Installation caution ····· 07
- 1-3. GPS caution ····· 07
- 1-4. Memory Card ····· 08

02 Features ····· 09

03 Package & Part Names
- 3-1. Package Guide ····· 12
- 3-2. Front & Rear ····· 13
- 3-3. Left & Right ····· 14

04 Installation
- 4-1. Front Camera (Main Unit) ····· 15
- 4-2. Rear Camera ····· 17
- 4-3. Memory Card Usage ····· 18

05 Product Usage
- 5-1. Standard Operation Guide ····· 19
- 5-2. LED indicator & Voice Guide ····· 22
- 5-3. LED indicator & Voice Guide ····· 25
- 5-4. Connecting to the BlackSys App ····· 25
- 5-5. Upgrading the App Firmware ····· 29
- 5-6. BlackSys Viewer Program ····· 30

06 Firmware Update
- 6-1. Firmware Update ····· 34
- 6-2. Download firmware ····· 34

07 SD Card Format
- 7-1. SD Card format ····· 35
- 7-2. Automatic format ····· 35

08 Product Specification ····· 36

09 Customer Service & AS ····· 37

10 Quality Assurances ····· 38

11 Product Warranty ····· 39

01 Product Precaution

1-1 Caution

1. Do not expose product to direct sunlight or cold weather for extended periods of time.
   Product exposure to direct sunlight and extreme temperatures may cause damage to the product.

2. Do not dismantle or alter the product.
   Do not disassemble, modify, or attempt to repair the product. Any alterations to the product can void the manufacturer's warranty. Please contact your local dealer or the C/S Centre for more information.

3. Do not dismantle or alter the product accessories.
   Do not disassemble, modify, or attempt to repair any accessories for this product (Cigar Jack Cable, Mount, etc.). This may cause damage to the vehicle and/or product. Any resulting damage shall be the responsibility of the user and is not covered under manufactures warranty.

4. Do not allow liquid to come into contact with product.
   Please note this product is not waterproof and exposure to liquid and foreign substances may cause a product malfunction, short circuit, and/or fire. Use caution when cleaning the product and clean with a soft and dry cloth.

5. Do not expose the product to heavy impacts.
   Excessive impacts to this product can cause a malfunction. Handle the product with care.

6. Only use manufacture approved power cable and accessories.
   Any damages or loss to product/vehicle as a result of accessory incompatibility will not be covered under manufactures warranty.

7. Any accessory or peripheral which manufacturer doesn't supply will not be covered by warranty.
   We will not warranty any accessory or peripheral if these are not authorized by us. User will be responsible for the damage caused by using unauthorized accessory or peripheral.

8. Do not operate the product for extended periods of time while the vehicle is not running.
   Excessive use of the product while vehicle is off can cause drainage to the vehicle's battery

9. Video quality may vary depending on extreme lighting conditions.
   Quality is subject to alterations in extreme dark/light areas and conditions. Most notability when entering/exiting a tunnel or parking garage.

10. Data may not be recorded if accident impact is lower than a predetermined threshold.
    In extreme cases the product may not record data during an accident due to low impact forces. In addition, during a high force impact accident power may be cut off to the product and data may be lost.

11. Do not disconnect the power source while the product is turned-on.
    Disconnecting the power source may cause the product to malfunction. Please use only the recommended voltage for power connection.

12. Some PCs may not support BlackSys Viewer or there may be some disconnections in voice/image depending on the PC's specifications.

13. AE operations at night may vary depending on vehicle (black, red) low light reflection.

14. There may be frame omissions due to rapid AE operational changes in low light areas.
    Please reset the installation angle of the product if AE operation malfunctions.

15. There may be noise in the video when recording in poor lighting environments.

16. In the event of a sudden frame change or switching between parking & driving modes, there may be a loss of data.

17. Motion detectors may malfunction in the event of an extreme increase/decrease to the surrounding lighting conditions of the vehicle.

18. The motion detection function may not operate properly in environments with poor lighting conditions due to noise and vehicle security LED(s).

*AE : Automatic Exposure

19. The left/right side image quality of this product may vary due to characteristics of the wide-angle lens.

21. Please ensure all accessories are connected to product(s) to avoid data loss.

22. The interworking draft using Wi-Fi between smartphone and product cannot be connected simultaneously, also when it is connected with product you cannot access internet.

23. Playing video or any other functions may not operate properly on specific kind of smart phone.

24. Using internet is restricted on the status of connecting product.

25. Do not continue to use this product if a malfunction is apparent. Please contact our C/S center or your local distributor with any questions and/or concerns about this product.

1-2 Installation caution

1. Keep product clear of clutter.
   Please ensure the surrounding area is clutter free to avoid reflections/vibrations that may reduce the image/audio quality.
2. Ensure camera lens is clean at all times.
   Allowing the camera lens to collect dust/oils will reduce the quality of the image.
3. Do not attempt to operate or install the product while driving.
   For your safety, do not attempt to operate or install the product while driving to avoid a traffic accident.
4. Please keep the product is securely fixed to mount.
   Please check that the product is secured before operating the vehicle. This will ensure the best image quality and avoid distractions to the driver while in motion.
5. Please avoid excessive window tints, as this may distort image quality.
6. Install this product at the point furthest away from the antenna or receiver as possible.
   The electromagnetic waves produced by the product may distort receiving sensitivity.
7. Installing camera on the tinted window is not recommended and be careful on damage of tinted window while uninstalling camera for service or other reason. We don't take any responsibility for the damage and so please be careful while uninstalling camera.

1-3 GPS caution

1. There is an error range of over 15m in a normal commercial GPS. There may be situation where the GPS signals cannot be received depending on the environment such as buildings, underground, and tress. This can make the error range bigger.
2. A combination of factors including weather can delay the time to receive the first GPS signal after power is connected to the product.

3. External electronic products and window tinting may affect the GPS reception.
4. Vehicle speed accuracy may vary between 1–30km/h depending on the reception area when stopping the car.
5. GPS may be operated when switching off the product.

1–4 Memory Card

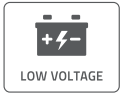
1. Do not remove the memory card by force while the product is in recording mode.
   Please turn off the product before removing the memory card(s). Removing the memory card(s) while the product is turned on may damage the video file or cause an internal operational error.
2. Be sure to periodically reformat the memory cards using the BlackSys Viewer or the product itself.
   Repetitive data creation and deletion by the product can cause damage to the memory card(s) and their file. 16G micro SD card should be formatted once a month. The warranty period of a memory card is 6 months, and we are not held responsible for any recording errors due to prolonged usage of a memory card after the 6 month period.
3. After reformatting a memory card, it can be used without configuration files such as firmware.
   The latest set value is contained within the product, and will be automatically applied to the SD card(s).
4. Please use Authorized memory cards to ensure the best quality.
   We will not be held responsible for any problems related to the usage of memory cards not provided by us.
5. Handle with care when inserting and removing the memory card(s) to avoid burns.
6. The memory card(s) operate at high temperatures, and we recommend you use caution when inserting and removing.
7. Please backup your recorded videos using an external storage product (PC, HDD, etc.).
8. Be sure to insert the micro SD card into the product.
   Without the micro SD card, event recordings are not saved.

02 Features

+ Clear image with CMOS Sensor
  Front: Full HD Sony CMOS Sensor / Rear: HD Image Sensor

+ Distortion-free recording with Wide-angle lens
  Front: 1920x1080p Full HD, 30fps / 16:9 wide screen with 135° angle of view
  Rear: 1280x720p HD, 30fps with 130° angle of view

+ Wi-Fi Support (802.11b/g/n (2.4~2/4835FHz))



+ Low Voltage Cut-off function
  Under 100uA Leakage current.

+ Supports a variety of recording functions
  - Continuous recording : Generates recording files at three-minute or five-minute intervals continuously.
  - Event recording : Generates 30sec recording files before and after the event.
  - Parking recording : Generates 30sec recording files before and after the motion is detected.

+ 8GB~128GB Memory Support

+ Multi Language Support

Korean, English, Chinese (Mandarin, Cantonese), Arabic, Russian, French, Spanish (Europe, South America), Japanese, Thai language, Bahasa Indonesia, Vietnamese, German, Turkish, Italian, Czech, Portuguese, Bahasa Malaysia

+ Security LED Support

+ GPS Dual Band (GPS+GLONASS)

+ Built-in microphone

Product records audio simultaneously with video.

+ Direct memory card format

Product formats memory card without connection to PC.

+ Built-in super capacitor

Internal battery replacements are not necessary due to a built-in semi-permanent super capacitor. When the vehicle is turned off, the product will save all data before terminating.

+ Playing

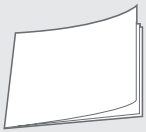
You can check the recorded video and driving information by BlackSys PC viewer and smartphone and also you can use other video player such as Windows media player.

03 Package & Part Names

3-1 Package Guide

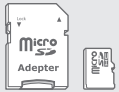
Standard Components

Main Unit (Product)

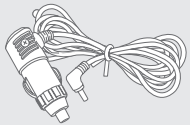


User Manual

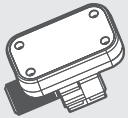
Cable Holder



Micro SD Memory



Cigar Jack Cable



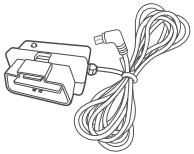
Bracket

Rear Camera

Wi-Fi Dongle

Option

DC Fuse Power Cable

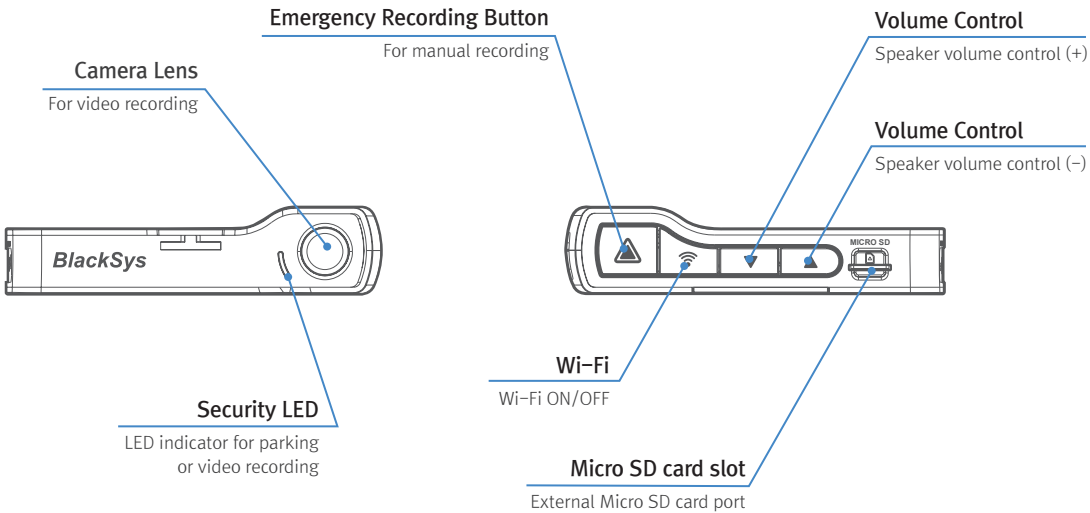


OBD Terminal

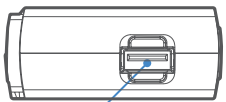
Bracket type GPS

※ Actual components may be different from pictures and some components can be changed in case.
If package doesn't include below components, please contact a retail shop or company where product was sold.

3-2 Front & Rear



3-3 Left & Right

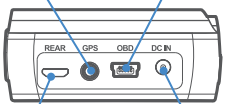


Wi-Fi Port

Wi-Fi Connecting port

GPS Port

Check location
and speed of vehicle
through BlackSys Viewer program



OBD Terminal

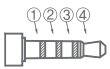
Check driving information
by using OBD cable

Rear Camera Connecting Port

Connecting HD rear camera

Power cable port

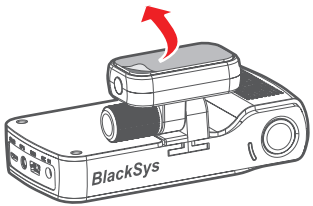
Cigar jack power cable port



① GND
② AV OUT
③ GPS Data
④ Power

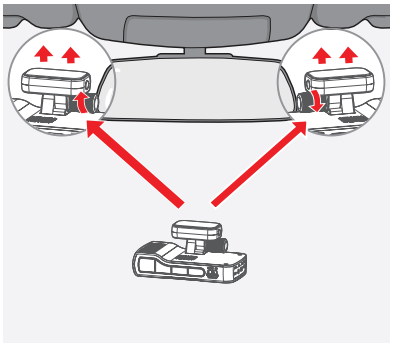
04 Installation

4-1 Front Camera (Main product)



1. Attaching double-sided adhesive tape

Wipe up the foreign matters or moisture completely from the location of installation. Remove the release paper on double sided tape and attach it to the cradle part of holder and remove the red adhesive protector.

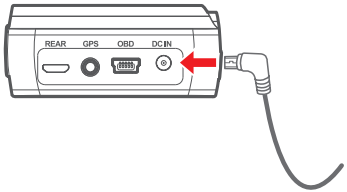


2. Installing unit

Installation is recommended on the left/right of room mirror. Tightly fasten the adhesive of holder to the windshield by pushing it. Adjust the angle of camera to record forward and unit to be vertically installed. Finally, tighten the clamping lever.

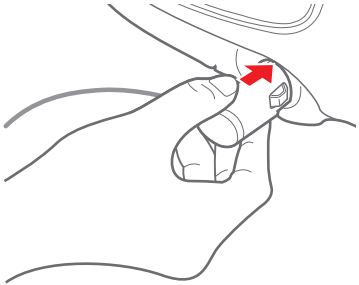
※ If a video from navigation system or dashboard reflect in windshield, it could affect video quality.

4-1 Front Camera (Main product)



3. Power cable arrangement and connection

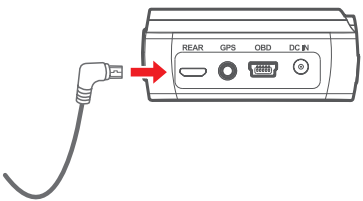
By using the cable holder, arrange the Cigar jack cable and connect it to the DC IN port.



4. Power cable connection and check the LED state

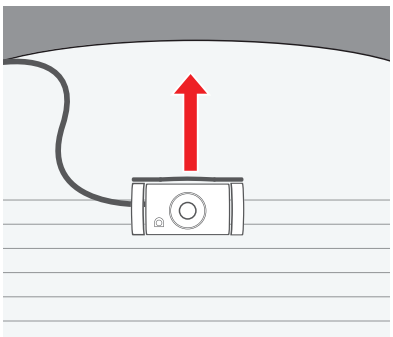
After inserting the Cigar jack cable into cigar jack, turn on the car ignition. If all LEDs of power status are on, installation is completed.

4–2 Rear Camera



1. Rear Camera Installation

Connect rear camera to the rear camera connector. Clean up the cable of rear camera from the location of installation.



2. Installation

Wipe up the foreign matters or moisture completely from the location of installation. Remove the red adhesive on double sided tape and attach it to the rear windshield. Installation is recommended on the middle of rear windshield.

※ Tinted windows may cause unclear image of video from rear camera. Avoid tinted window.

4-3 Memory Card Usage

- Video is recorded in 3 or 5 minute intervals for continuous recording. 30 second intervals for motion and event recording.
- The number of files and usage times below is standard when set at 70% continuous, recording, 20% motion recording and 10% event recording.

1. Micro SD Card Usage Time

SD	Continuous		Motion		Event	
	Front	Rear	Front	Rear	Front	Rear
8G	22 files	22 files	36 files	36 files	18 files	18 files
	66 min (1h 6min)		18 min		9 min	
16G	45 files	45 files	76 files	76 files	38 files	38 files
	135 min (2h 15min)		78 min (1h 18min)		39 min	
32G	91 files	91 files	156 files	156 files	78 files	78 files
	273 min (4h 33min)		79 min (1h 18min)		39 min	
64G	184 files	184 files	316 files	316 files	158 files	158 files
	552 min (9h 12min)		158 min (2h 38min)		79 min (1h 19min)	
128G	368 files	368 files	632 files	632 files	316 files	316 files
	1104 min (18h 24min)		316 min (6h 16min)		158min (2h 38min)	

※ Front 6M/sec, Rear 4M/sec (High quality standard)
※ The number of files and usage times may be different from actual usage time.
※ Total recording time means sum of front and rear recorded videos. (It saves front and rear videos separately)
※ The number of files and usage times may be changed according to the quality of video.

05 Product Usage

5-1 Standard Operation Guide

1. Recording start and end

- Once connecting power, CH-100B gives voice guide, “Start recording” and then it starts recording.
- Once disconnecting power, CH-100B gives voice guide, “Car DVR is ending”.

※ Please check whether the SD card is inserted into the main unit or not before connecting power.

2. Recording Mode & Time usage

Mode	Recording Time		Save location
Normal Recording	Normal	3/5 min	AlwaysMovie folder
	Event	10 sec before / 20sec after	EventMovie folder
	Manual	10 sec before / 20sec after	EventMovie folder
Parking Recording	Motion	10 sec before / 20sec after	MotionMovie folder
	Parking	10 sec before / 20sec after	EventMovide folder

※ While Event recording and manual recording mode, other event or manual mode will not be operated.

3. Video Playback

- Playback the recorded video: To playback the recorded video, touch “SD Card” or “BLACKSYS” (When connecting Wi-Fi) of CammSys application. Also you can check the video on BlackSys Viewer on PC with Micro SD card.

4. Normal Recording

- Normal recording : Recording starts when vehicle power is turned on and recorded data are stored in SD card. (“AlwaysMovie” folder)
- Event recording : Recording starts if acceleration sensor(G-sensor) detects impact, sudden unintended acceleration and quick braking, it records 30 sec. of video to the (“EventMovie” folder)(10 sec. before and 20 sec. after the event)
- Manual recording : Recording starts if user manually pressed the vent button during the car runs, it records 30 sec. of video to the (“EventMovie” folder).

※ While Event Recording, Manual recording function cannot be operated and during Manual recording, Event recording also cannot be operated.

5. Parking Mode Recording

- Paring mode is active when the product power is ON.

※ Note that recording and the product itself will terminate power if the vehicles’ battery drops below a predetermined voltage.

- Parking Mode Setting : The product can be programed with a set time to initiate the ‘auto conversation to parking mode’ function. When the product converts to parking mode, a voice segment (“Switched to parking mode”) is announced.

※ Automatic conversation to parking mode can be programed in the **Configuration Setting 〉〉 Basic Functions** of the BlackSys viewer, or on the BlackSys mobile app : **BlackSys Settings 〉〉 Basic Function**.

※ As recording stops and converts to parking or driving mode, less than 5 seconds of video may be lost.

- Recording in Parking model “Motion LED segment will be displayed on lower part of the screen when saved video playing.

※ When converting from normal, event, or manual recording mode to parking mode, each recorded file is terminate and converted into parking mode. For this reason, video loss can occur.

- When selecting ‘Use motion detection’ in the configuration settings, video will be recorded for 30 seconds in total when motion is detected – 10 sec. before / 20 sec. after. Files will be saved in the “MotionMovie” folder.

※ For efficient memory management only the rear/front camera that detects the motion will activate.

※ You can set the motion detection function on the BlackSys Viewer : **Configuration Settings 〉〉 Notion Detection**.
Or directly from the BlackSys App : **BlackSys Settings 〉〉 Motion Detection**.

※ White LED will blink while motion recording is active.

※ Motion detection may fail when the vehicle is in extreme lighting conditions.

※ Recording time during parking mode may vary depending on the vehicles' battery voltage.

※ Motion recording may continue according to changes in the environment, the sensitivity must be set to in accordance with your parking environment.
(E.g. When parking in an alley or underground, frequent movements may interfere with motion recording if set on a high sensitivity.)

6. Driving Information Check

– Configuration setting → GPS function → Driving Information

After you have set the storage intervals for driving information on the configurations settings, the desired data points will then be saved at every programed interval.

5-2 LED Indicator and Voice Guide

※ Function can be changed according to product upgrade.

- Sound effect

Function	Voice Guide
System start	Starting the recording
System OFF (Disconnecting power)	Terminating the system
Start recording	None
End recording	None
Connecting /Disconnecting rear camera	None (System will be rebooted if you connect rear camera while operating)
GPS satellite positioning	None
Remove SD card while operating	None (System will be rebooted if you connect rear camera while operating)
Without SD card	There is no SD card (Repeat, Reboot once insert the SD card)
Manual SD card format	Formatting is on standby. Press the left key to format
Proceed SD card format (Event Key)	Formatting the SD card. Do not turn off the power.
Security LED setting	None

Function	Voice Guide
Time signal (In case of using Fixed time alarm)	1O'clock
Voice recording setting	Starting the voice recording Disabling the voice recording
Convert to parking mode	Switching to parking recording mode
Convert to normal mode from parking mode	Switching to normal recording mode
Normal recording	None
Manual recording	Ding-dong, beep sound
Event recording	Ding-dong, beep sound
Start Firmware upgrade	None
Power OFF with High Temperature cut-off function	None
Low voltage cut-off	None
Volume (+)(-)	Beep sound
Wi-Fi ON	Ti-ting~ sound
Wi-Fi OFF	Ti-ting! sound

– Hardware (H/W) Status LED

LED		Red(REC)	Green(Rear)	Blue(GPS)	Yellow(Wi-Fi)
Rear camera	Connect / Disconnect	Connecting rear camera while operating / Rebooting when disconnecting			
GPS	Connection success	ON	ON(2CH)	ON	–
	Connection failed	ON	ON(2CH)	OFF	–
Wi-Fi	ON	ON	ON(2CH)	–	ON
	OFF	ON	ON(2CH)	–	OFF

– Security Status LED

LED		Red(REC)	Green(Rear)	Blue(GPS)	Yellow(Wi-Fi)	Security LED
Parking Mode	Standby	ON	ON(2CH)	ON(Connecting)	ON(Connecting)	Blink 3sec.
	Motion Detection	ON	ON(2CH)	ON(Connecting)	ON(Connecting)	Blink 1sec.
	Parking Event	ON	ON(2CH)	ON(Connecting)	ON(Connecting)	Blink 1sec.

– Power ON/OFF

Function	Voice Guide	Operating Status
Power ON	Starting the recording	
Power OFF	Terminating the system	

– Operating button (Option Key), Long Key (More than 3 sec.)

Function	Key	Voice Guide
SD Card Format	Event Button Long Key	Formatting is on standby. Press the left key to format
	Event Button Long Key	Formatting the SD card. Do not turn off the power.
	Event Button Short / All key down except Long Key	None
Voice Recording ON/OFF	Press long volume button (+)	Starting the voice recording
	Press long volume button (–)	Disabling the voice recording

– Error Occur

Function	Voice Guide
SD Card not inserted	Insert SD card (Repeat, Reboot once insert)
SD Card Defective	Cannot read the SD card. Please check the SD card
Front camera related failure	Recording failure. 1
Rear camera related failure	Recording failure. 2
SD card recording related failure	Recording failure. 3

5-3 Using BlackSys App

1. Start and end recording

※ Download the BlackSys application on your smartphone.
The BlackSys application can be found on the Google Play Store and The App Store for iPhone.
- The BlackSys application can be used with Android 4.2 or later, iOS 5.0 or later.
- The BlackSys App may not be supported depending on the smartphone.

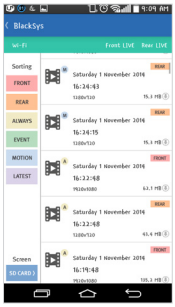
※ Turn the Wi-Fi button located at the bottom of the product.
※ For playback of recorded videos using Wi-Fi, the reception may vary according to the data transfer rate.
※ The range of Wi-Fi reception may vary.
※ The path of recorded videos may vary depending on the smartphone.
※ Multi-connection is available but for the stability of connection, please connect one device to Wi-Fi.

[Download BlackSys APP from Google play store]

5-4 Connecting the BlackSys App

[BlackSys APP]

[BlackSys APP Main]

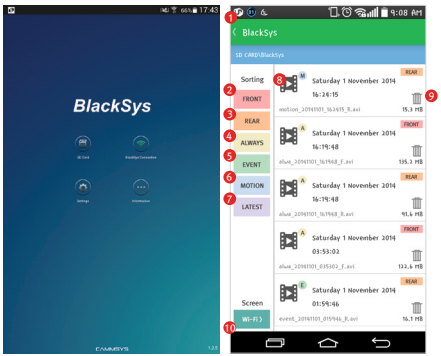


[BlackSys APP Play list]

1. Select the BlackSys Connect button on the main screen.
※ When the product is connected with your smartphone, the BlackSys connect icon will turn green.
2. Select 'BlackSys' on the Wi-Fi list.
3. Enter in the default password : 11111111.
※ For a stable connection, please remain within close proximity with your product.
※ Change your password to prevent others from accessing your product.
※ Configure your product name and password on the Blacksys Viewer program.

5-4-1 Using BlackSys App – SD Card

※ You can view your recorded footage saved on the SD Card right from the BlackSys App.

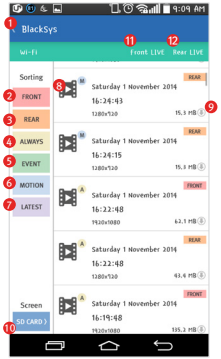


1. Navigation : Navigate to the Main Screen
2. Front Camera : Display all footages except Front Camera
3. Rear Camera : Display all footages except Rear Camera
4. Always Video : Display all footages except Always Recording mode
5. Event Video : Display all footages except Event Recoding mode
6. Motion Detection Video : Display all footages except Motion Detection mode
7. Customize : Arrange order of footage by time sequence (ascending/descending)
8. Play : View footage file
9. Delete : Delete footage file
10. Wi-Fi : Navigate to 'BlackSys Connection'

5-4-2 Using the BlackSys App – BlackSys Connection

※ Connect with your BlackSys product to view captured footage.
※ Green indicates a successful connect on the Main Screen.

[Disconnect Wi-Fi]

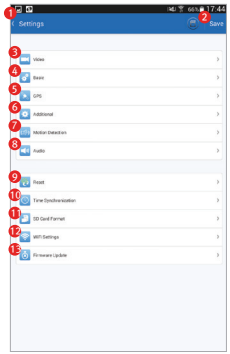


[Wi-Fi Connection]

1. Navigation : Navigate to the Main Screen
2. Front Camera : Display footage captured by the Front Camera
3. Rear Camera : Display footage captures by the Rear Camera
4. Always Video : Display footage captured in Always Recording mode
5. Event Video : Display footage captured in Event Recoding mode
6. Motion Detection Video : Display footage captured in Motion Detection mode
7. Customize Order : Arrange order of footage by time sequence (ascending/descending)
8. Play : View footage file
9. Download : Save footage file onto your Smartphone as a movie clip
   ※ File path may vary depending on Smartphone and OS.
10. SD Card : Navigate to 'SD Card'
11. Front Camera LIVE : View a live video stream from the Front Camera
12. Rear Camera LIVE : View a live video stream from the Rear Camera

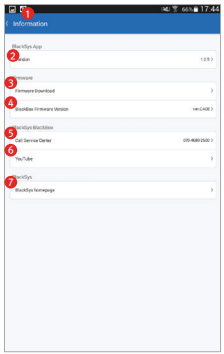
5-4-3 Using the BlackSys App – Configuration

※ Configuration only available when BlackSys product is connected to your Smartphone.
※ Menu items may vary depending on BlackSys model.
※ While saving changed value, either black box and smart phone have to be turned on.



1. Navigation : Navigate to the Main Screen
2. Save Changes : Changes will be saved and applied
3. Video : Configure video settings
4. Basic : Configure basic settings & functions
5. GPS : Configure GPS settings
6. Additional : Additional settings and functions
7. Motion Detection : Configure setting for Motion Detection
8. Audio : Configure audio quality and settings
9. Reset : Reset all settings applied to product to default factory settings
10. Time Synchronization : Synchronize product time with Smartphone
11. SD Card Format : Format Micro SD
12. Wi-Fi Settings : Verify changes to the Wi-Fi network of the product
13. Firmware Update : Updates available for your product

5-4-4 Using the BlackSys App – Miscellaneous



1. Navigation : Navigate to the Main Screen
2. Application Version : Displays current mobile app version
3. Firmware Download : Download the latest firmware
4. Firmware Version : Displays current firmware version of your product
5. Call Service Center : Contact BlackSys for more information
6. YouTube : View our YouTube channel
7. BlackSys Homepage : Visit our homepage for more information

5-5 Upgrading Firmware on the BlackSys App

1. Connect to your BlackSys product to view current firmware version.
2. Navigate to Firmware Download (Information → Firmware Download)
3. Download the latest firmware available (Charges may apply depending on carrier).
4. Ensure product and smartphone maintain a stable connection.
5. Upload firmware to your product (BlackSys Configuration → Firmware).
6. Please wait until the product has rebooted.

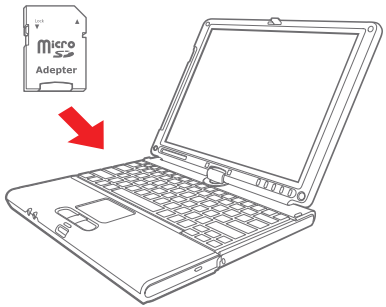
※ Please do not restart your Smartphone or Product while firmware is being installed.

5-6 BlackSys Viewer

1. Program Installation

- BlackSys Viewer can be found on the SD card(s) that come with your product.
  ※ You can download the BlackSys Viewer from our webpage
  www.blacksys.co.kr/en 〉GET SUPPORT 〉Download and execute.
  Once installation is completed, click BlackSys Player and execute it.

CH-100B
Player



2. Uninstallation (Choose one of 3 options)

① **Control panel 〉program uninstallation & change 〉uninstallation BlackSys (CH-100B) Player**

② **Execute C:\Program Files(x86)\BlackSys\BlackSys Player \Uninstall BlackSys Player**

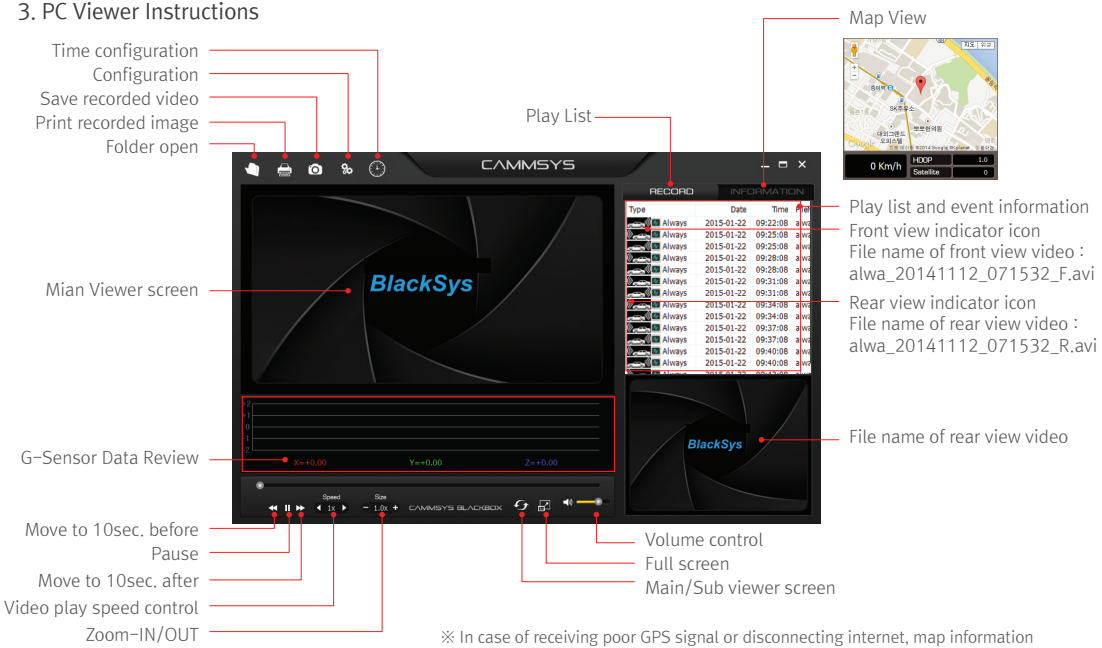
③ **Execute Start 〉All program 〉BlackSys Player 〉Uninstall BlackSys Player**

Recommended System for PC viewer

- OS: Windows XP SP3, Vista(32bit), 7(32/64bit)
- MAC: OSX 10.7 over
- H/W: Pentium 4 2.8GHz over / 1G ram over
- Web browser: MS Internet Explorer 8.0 over
- Other: Windows.NET Framework 3.5 over

※ Buffering of video and audio, changing in playing speed, and missing files can be happened due to the performance and type of PC.

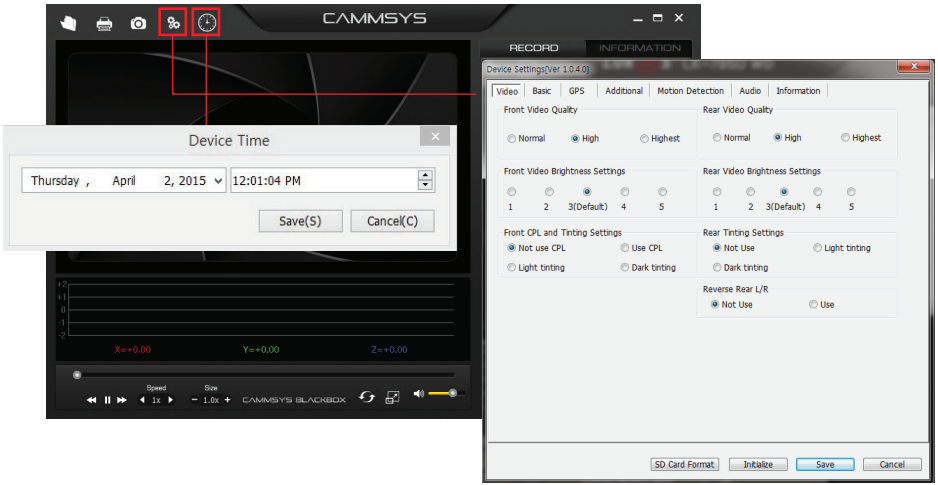
3. PC Viewer Instructions



※ In case of receiving poor GPS signal or disconnecting internet, map information of GPS may not be displayed.
※ It is only interlocked automatically with upper version than explorer 7.
※ Use “Full screen” to watch the video in Full HD.

4. Configuration

– User can change the default setting value such as recording, system, time and more options using “Configuration” on the PC viewer program menu.



5. Recording screen

1. Date, time
2. Speed of vehicle (Only with GPS)
3. Status of GPS
   ※A: GPS receiving
   ※ V: GPS not receiving
   ※ F: GPS is not connected
4. Driving distance (Only with GPS)
5. Power type
6. Recording mode
7. Plate number (Max 8 digit)
8. Firmware version

06 Firmware Update

6-1 Firmware Update

✔Please follow the below process in case of updating firmware.

① Remove SD card from the unit.
- Turn off the ignition first and remove cigar jack cable from the unit.

② Access our webpage (**www.blacksys.co.kr/en 〉 GET SUPPORT 〉 Download**) and download the latest update file.

③ Connect SD card to PC and paste downloaded latest update file **(CH100update.zip)** to the root of removable disk.

④ Insert SD card which contains latest update file to the unit.
- Turn on the ignition and connect cigar jack cable to the unit.

⑤ All LED is light on and update is initiating. Once finish the update, it starts recording automatically.
- Do not disconnect power cable while update is in process. It can cause malfunctioning.

6-2 Download (Firmware & PC viewer)

- Access our webpage (**www.blacksys.co.kr/en 〉 GET SUPPORT 〉 Download**) and download the latest update file and PC viewer.
- Complete program installation

※ You must connect internet to download firmware and PC viewer program.

※ Please check notice before update your product to avoid from changing in functions.

07 How to format SD card

7-1 PC format

1.PC format

※ “How to format?” is provided from PC viewer. We do not recommend to format on “My Computer”.

① Insert or connect SD card to PC.
② Click **[Start]** → **[My Computer]**
③ Place mouse pointer on **[Portable USB drive]** SD card and click the right button of mouse. Then click the [Format]
④ Once click the **[Start]** button, format is started.

- FAT 32 format is required if SD card recognition and record error happen.
  Product will format SD card automatically in case of using 32KB cluster size format.
- Change SD card if PC doesn’t recognize SD card or format is not able to be completed.
- If SD card contains other data, it can cause malfunctioning. Therefore, please remove it.

※ As SD card is expendable supply, manufacturer is not responsible for any data loss and damage.
Also, manufacturer cannot guarantee the recorded data in SD card.

2.Format PC viewer

① Click “Configuration”
② Click “SD card format”. (Refer to P. 30 Configuration)

7-2 Format on product

※ Formatting SD card is also possible on the product.

① Press Event button for 3sec. then it will give voice guide “Formatting is on standby. Press the left key to format”.
② Press Event button again then format will be started with voice guide “Formatting SD card. Do not turn off the power”.
③ It will start recording automatically once the format is done.

08 Technical Specification

※ Technical Specification can be changed without prior notice for product improvement.

Feature	Feature Description
Camera	Front: Full HD 2.1M Pixels Sony CMOS Sensor (1/2.9") Rear: HD 1.0M Pixels COMS Sensor (1/2.9")
Angle of View	Front: 135° / Horizontal(107°), Vertical(55°) Rear: 130° / Horizontal(105°), Vertical(54°)
Bitrate & Frame	Front: 6Mbps 30fps Rear: 4Mbps 30fps
Video & Audio Format	H.264(AVI), Codec profile : HIP(High profile) PCM
Recording Method	In case SD card is full, it deletes the oldest files (automatically) in order
Normal Recording	Video is recorded in 3 or 5 minute intervals
Event Recording	10 sec. before and 20 sec. after the event
Shock Detect Recording	10 sec. before and 20 sec. after the shock is detected
Motion Recording	10 sec. before and 20 sec. after the motion is detected
Format Function	PC, APP, Product

Feature	Feature Description
Shock Sensor	Tri-axial shock detection G-Sensor
GPS	Dual GPS Module
Memory Storage	Micro SD card: SDHC/SDXC memory card
Video Playing	Normal / BlackSys PC Viewer program
Audio	Built-in speaker and MIC
Power and Power consumption	Input Voltage: DC 9V ~ 24V Voltage consumption: 380mA (13.4V) WIFI OFF
Permanent Power	Cut-off voltage (12.4V~11.8V, 0.2V interval) Cut-off time (12, 24, 36, 48 Hour) Possible to use both functions at the same time
Operation and Storage temperature	Operation temperature : -20℃ ~ 70℃ Storage temperature : -30℃ ~ 80℃
Dimension & Weight	Front : 58x100x34(mm), 98g Rear : 50x26x31(mm), 25g

09 Customer Service

※ We don't take any responsibility for the data loss during the service. Please back up the date before applying for service.

CammSys Customer Service

- Address: 3F Daeil B/D, 681-17, Yeoksam-dong, Gangnam-gu, Seoul, 135-081, Korea
- Opening hour: 09:00 ~ 18:00 (Mon. ~ Fri.)
-Closed: Saturday, Sunday and Public Holiday

If you come to customer service center, service personnel will care for the service timely and properly.
For further information regarding customer service, please refer to www.blacksys.co.kr

10 Quality Assurances

1. Warranty period

- Product(main unit) : 12 months from the purchase date (But, if purchase date is not clear, it can be applying 3 months warranty after manufacturing date)
- Accessory(expendable supply) : 6 months including SD card.(In case of using DC fuse power cable, memory card life can be shorter than general use)
- Service parts holding period : 5 years after stopping sales

	Type of Damage	Compensation standard	
		Within Warranty Period	After Warranty Period
Claim a service for trouble caused in a normal use condition	Claim a service for a main part within 10 days after purchase	Replacement or refund	Not applicable
	Claim a service for a main part within 1 month after purchase	Replacement or Free repair	Not applicable
	Claim a service for faulty unit	Free repair	Repair at cost
	Repair is not available	Replacement or refund	Replacement or refund after depreciation
	Replacement is not available	Refund at cost	Applicable by bylaw
	Claim a service for a main part within 1 month after unit exchange	Refund at cost	Applicable by bylaw
	Same defect over 3 times	Replacement or refund	Not applicable
	Multi defect over 5 times	Replacement or refund	Not applicable
	Lost by service center during repair service	Replacement or refund	Applicable by by law
Claim a service for not holding service parts within service parts holding period	Trouble caused in a normal use condition	Replacement or refund	Not applicable
	Customer's negligence or fault, functional defect	Repair at cost	
Damaged unit from distribution		Replacement	Not applicable
Damaged unit from installation		Replacement	Not applicable

※ Warranty period is 12 months after purchase.

※ We provide product repair and replacement services within the warranty period in accordance with the consumer protection regulations.
(the Korea Fair Trade Commission Directive 2008-3)

11 Product Warrarnty

Model Name	CH-100B			
Manufacturer	Cammsys Co.,Ltd			
Serial No.				
Purchase Date				
Warranty Period	12 months from the purchase date (But, if purchase date is not clear, it can be applying 3 months after manufacturing date)			
Customer Information	Name		Tel.	
	Address			
Assembler information	Shop name		Tel.	

※ The warranty for the product is benefited by the details on the warranty card.
※ Warranty period is counted from the purchase date. So get the purchase date.
※ This warranty card is not reproduced.

CAMMSYS

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